

Project Baseline Summary Report

Data Source: **EM CDB**

Operations/Field Office: **Oakland**

Site Summary Level: **Lawrence Berkeley National Laboratory**

Project **OK-016 / LBNL Newly Generated Wastes**

Report Number: **GEN-01b**

Print Date: **3/9/2000**

HQ ID: **0279**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Definition of Scope: The LBNL WM Program encompasses the treatment, storage, transport, and disposal of hazardous, radioactive, and mixed waste generated by LBNL operations. The LBNL WM Program also performs the compliance and QA functions necessary to comply with federal, state, and local regulations, and the provisions of DOE Orders. Examples of measureable activities are: preparing annual waste forecasts for off-site TSDFs, U.S. EPA Annual and Biennial reports, annual and quarterly State fee forms; responding to DTSC inspections; auditing off-site TSDFs; monitoring and reporting performance including volumes of waste treated and shipped off-site for disposal; and forecasting and reporting financial information. Waste pickup, treatment, etc. will be performed on a continuous basis and will keep pace with waste generation.

Technical Approach: Perform limited on-site treatment of low-level waste (decay in place, consolidation), and mixed waste (neutralization, filtration, consolidation)[Oakland Site Technology Need No. 3]. Develop treatability studies for destruction of organics in treatability samples. Packaging and shipment of HW, LLW, and MW is done in accordance with off-site TSDF requirements. HW is brokered to various commercial TSDFs. MW Site Treatment Plan relies mostly on INEEL (WERF and AMWTP) for treatment. Disposal decision of treated MW have not yet been made. LBNL is evaluating many LLW treatment and disposal options in order to identify the most cost-effective treatment and disposal option which minimizes long-term liability for each of several waste streams.

Project Status in FY 2006:

Newly Generated Waste Project will be transferred to Office of Science (SC) in FY 2001.

Post-2006 Project Scope:

Newly Generated Waste Project will be transferred to Office of Science (SC) in FY 2001. Under SC, the project is expected to continue for the foreseeable future.

Project End State

Newly Generated Waste Project will be transferred to Office of Science (SC) in FY 2001. Under SC, the project is expected to continue for the foreseeable future.

Cost Baseline Comments:

No contingency was used. Detailed WBS was constructed and each activity cost and schedule-estimated, then rolled up and sorted by waste type, driver, etc.

Safety & Health Hazards:

The HWHF is the primary collection and packaging facility for radioactive, hazardous, and mixed wastes at LBNL. Radioactive wastes consist primarily of compactible dry active waste, noncompactible (e.g. tools, gloveboxes & equipment) rad waste, scintillation vials containing radioactive water-soluble fluids, animal tissues, and waste tritium adsorbed on silica gel. Over 50 different isotopes can be present in LBNL rad waste, but usually

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at relatively low levels. Most of the rad waste which enters the HWHF is categorized as contact-handled, Category I low-level waste (LLW), but a portion (<10%) is Category III LLW. Rad waste processing at the HWHF can include sampling, compaction, solidification, adsorbed tritium encapsulation, waste decontamination, radioactive decay, and packaging waste per DOT requirements for off-site treatment and disposal.

The HWHF also processes mixed (MW) and nonradioactive hazardous wastes (HW), including poisonous chemical solids, organic flammable chemicals, carcinogenic materials, liquid organic solvents, corrosive acids and bases, and waste oil. In broad terms, the range of isotopes and radioactivity in MW accepted at the HWHF is similar to that of LLW. Sampling and some waste treatment (neutralization, desensitization, consolidation) can be performed at the HWHF as needed. The majority of waste is packaged per DOT requirements for off-site treatment and disposal but some waste that has been fully neutralized and/or decayed can be discharged to the local POTW.

The majority of S&H accidents that could occur are those that are common in ordinary industries. The accidents that could have the greatest impact or highest consequence are a transportation accident, a facility fire, a spill, or an external fire or earthquake. These accident scenarios were studied during the Final Safety Analysis Document (reference: FSAD for the HWHF at LBNL, April 15, 1997). FSAD calculations confirm that the facility will operate as a low-hazard facility as defined by DOE-ETM-STD-5502-94 if proper controls are maintained. This means that all accidents studied would result in less than 20 rem committed effective dose equivalent (CEDE) to less than five maximally exposed onsite individuals, and less than 5 rem CEDE to the maximally exposed offsite individual. Offsite radiological consequences from the postulated accidents are more than 10 times below regulatory limits for radiation exposure.

It is important to note that LBNL can generate LLW and MW which cannot be processed at the HWHF because either the radioactivity levels exceed the FSAD Operational Safety Requirements, or MW contains some constituents which the HWHF is not permitted to accept. The HWHF will operate within the safety envelope only if key administrative and engineering controls are continuously maintained (see next section).

Safety & Health Work Performance:

Before new activities begin or a work process changes significantly in the HWHF, the WM Group consults with IH, OS, RP, and FP specialists as appropriate. There is no direct S&H resource as the WM Group writes or updates procedures as appropriate, and updates the H&SP and safety analyses documentation. LBNL WM does not forecast S&H FTE needs for a typical year, as these are generally overhead-funded resources that are called upon as needed. However, as the HWHF is on of LBNL's Class 3 RWAs (Radiological Work Authorization) we will contract for ~0.5 FTE of a dedicated Health Physicist (HP) support. The LBNL WM Operations Team (currently funded by EM) is managed by a Team Leader and field work is supervised by a Lead Technologist. These two positions direct the day-to-day work of the WM Technicians who handle the waste. At least one of these people has a RP background and at least one has a chemical safety background.

PBS Comments:

LBNL is located mainly in the City of Berkeley and adjacent to the University of California, Berkeley campus. The property is owned by the University and leased to DOE. Local interest in LBNL operations, specifically the environmental and human health impacts thereof, is very high. Inspectors from the City of Berkeley are on site regularly and LBNL management frequently addresses the local city council and holds periodic public meetings. Continued support of a sound WM Program for LBNL operations is key to maintaining local public support of the multidisciplinary research conducted at LBNL.

Baseline Validation Narrative:

The LBNL Waste Management activity was validated by DOE/OAK Environmental Programs Division, Cost Estimating Group in February 1996. A

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detailed review of the activities and associated costs were examined against the technical scope, budget, and schedule baselines provided by the laboratory. The cost validation identified areas for streamlining which were recommended for a phased-in approach. The Waste Management activities were revalidated by the U.S. Army Corp of Engineers in early December 1996 for the initial Ten Year Plan submittal.

General PBS Information

Project Validated? Yes **Date Validated:** 2/13/1996

Has Headquarters reviewed and approved project? No

Date Project was Added: 12/1/1997

Baseline Submission Date: 7/13/1999

FEDPLAN Project? Yes

Drivers:	CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
	N	Y	N	Y	N	Y	Y	Y

Project Identification Information

DOE Project Manager: Robert Kong

DOE Project Manager Phone Number: 510-637-1522

DOE Project Manager Fax Number: 510-637-1646

DOE Project Manager e-mail address: robert.kong@oak.doe.gov

Is this a High Visibility Project (Y/N):

Planning Section

Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006
PBS Baseline (current year dollars)	59,533	863,559	923,092	4,951	4,896	5,775	5,059	5,940	6,100	6,000	6,000	6,000	6,126	6,255	6,386

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Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006	
PBS Baseline (constant 1999 dollars)	55,888	351,604	407,492	4,951	4,896	5,775	5,059	5,940	5,940	5,722	5,604	5,489	5,489	5,489	5,489	
PBS EM Baseline (current year dollars)	28,766	0	28,766	4,951	4,896	5,775	5,059	5,940	6,100	6,000	0	0	0	0	0	
PBS EM Baseline (constant 1999 dollars)	28,328	0	28,328	4,951	4,896	5,775	5,059	5,940	5,940	5,722	0	0	0	0	0	
	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS Baseline (current year dollars)	6,520	6,657	6,797	6,940	36,946	40,992	45,480	50,461	55,986	62,117	68,919	76,466	84,839	94,129	104,437	115,873
PBS Baseline (constant 1999 dollars)	5,489	5,489	5,489	5,489	27,471	27,471	27,470	27,471	27,470	27,471	27,471	27,471	27,470	27,470	27,471	27,471
PBS EM Baseline (current year dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Non-EM Costs included in the Cost Baseline

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Non-EM Category: Newly Generated													
Office of Science						100	100	100	100	100	100	100	100
	2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
Non-EM Category: Newly Generated													

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	2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
Office of Science	100	100	100	100	100	100	100	100	100	100	100	100	100

Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	2.70%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project:

Current Projected End Date of Project: 9/30/2000

Explanation of Project Completion Date Difference (if applicable):

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	17,026	Actual 1997 Cost:	4,896	Actual 1998 Cost:	5,059
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	7,071	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):			191
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	7,262				

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):		
Cost Reductions Due to Efficiencies (-):	1,381	
Cost Associated with New Scope (+):	6,000	Add cost for FY01. EM includes FY01 budget request for the SC.

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Project Reconciliation

Cost Growth Associated with Scope Previously Reported (+):

Cost Reductions Due to Science & Technology Efficiencies (-):

Subtotal: 11,881

Additional Amount to Reconcile (+): 5,721 Waste Management activities transferred to SC in FY01.

Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars): 17,602

Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
SHIP 0.3 m3 MW	OK016-27		9/30/1999	6/15/2001			Y				Y
SHIP ~52.1 m3 LLW	OK016-24		9/30/1999								Y
Start treatment of MLLW at INEEL AMWTP facility	OK016-44		3/31/2004								
Project Start Date			10/1/1989								
Project End Date			9/30/2000								

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
SHIP 0.3 m3 MW	OK016-27						1	1	1		Ship 0.3 m3 MW as shown in ACPC for FY99.
SHIP ~52.1 m3 LLW	OK016-24						1	1	1		Ship ~52.1 m3 LLW in FY99 as identified in ACPC
Start treatment of MLLW at INEEL AMWTP facility	OK016-44		Y				1	1	1	Y	Start treatment of MLLW at INEEL AMWTP facility.
Project Start Date				Y							
Project End Date					Y	Y					Transfer project to Office Of Science.

Performance Measure Metrics

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Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planned 2004
TRU														
Storage	M3							1.20	1.20	1.20				
TRU														
Ship. to WIPP	M3	0.00	0.00	0.00	0.00		0.00							
MLLW														
Treatment	M3	2.35	0.00	2.35	0.00		0.00	1.16	0.99	0.20				
MLLW														
Storage	M3							9.62	0.64	2.54				
MLLW														
On-Site Disp.	M3	0.00	0.00	0.00	0.00		0.00							
MLLW														
Comm. Disp.	M3	4.90	2.27	7.17	0.00		0.00	0.00	4.90	0.00				
MLLW														
Ship to DOE Disp.	M3	0.00	0.00	0.00	0.00		0.00							
MLLW														
TBD Disp.	M3	0.00	0.00	0.00				0.00	0.00	0.00				
LLW														
Treatment	M3	35.30	8.50	43.80	0.00		0.00	29.10	3.10	3.10				
LLW														
Storage	M3							27.50	22.40	28.10				
LLW														
On-Site Disp.	M3	0.00	0.00	0.00	0.00		0.00							

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Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planned 2004
LLW														
Comm. Disp.	M3	91.50	0.00	91.50	0.00		0.00	33.90	32.00	25.60				
LLW														
Ship to DOE Disp.	M3	7.70	0.00	7.70	0.00		0.00	1.30	6.40	0.00				
Haz.														
DOE On-Site	MT	0.00	0.00	0.00	0.00		0.00							
Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035	Planned 2036 - 2040
TRU														
Storage	M3													
TRU														
Ship. to WIPP	M3													
MLLW														
Treatment	M3													
MLLW														
Storage	M3													
MLLW														
On-Site Disp.	M3													
MLLW														
Comm. Disp.	M3													
MLLW														
Ship to DOE Disp.	M3													

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Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035
MLLW													
TBD Disp.	M3												
LLW													
Treatment	M3												
LLW													
Storage	M3												
LLW													
On-Site Disp.	M3												
LLW													
Comm. Disp.	M3												
LLW													
Ship to DOE Disp.	M3												
Haz.													
DOE On-Site	MT												
Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total			
TRU													
Storage	M3								0.00				
TRU													
Ship. to WIPP	M3									0.00			
MLLW													
Treatment	M3								0.00	12.70			
MLLW													
Storage	M3												

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MLLW										
On-Site Disp.	M3									0.00
MLLW										
Comm. Disp.	M3				2.27				0.00	6.27
MLLW										
Ship to DOE Disp.	M3									12.50
MLLW										
TBD Disp.	M3								0.10	0.10
LLW										
Treatment	M3				8.50					70.60
LLW										
Storage	M3		2.80							
LLW										
On-Site Disp.	M3									60.60
LLW										
Comm. Disp.	M3									54.60
LLW										
Ship to DOE Disp.	M3									0.00
Haz.										
DOE On-Site	MT									8.00

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